Korea

Korea is the fourth-largest export market for semiconductors, and the second-largest export market for semiconductor manufacturing equipment (SME). Korea is a participant in the WTO Information Technology Agreement, so most types of semiconductors and semiconductor manufacturing equipment enter the country duty-free, and any remaining types have duty-free access under the U.S.-Korea Free Trade Agreement. As a major producer and importer of ICT goods, Korea is a key participant in the WTO Information Technology Agreement expansion negotiations. For semiconductor manufacturing equipment, there are IPR concerns with Korea.

Korea is a large market for U.S. exports of both semiconductors and semiconductor manufacturing equipment (SME). Due to Korea's position as a leading semiconductor producer, it is the second largest market for SME – second as a U.S. export market, and as a world market.

The Korean market is very receptive to both U.S. semiconductors and SME. Korea ranks lower as a market for semiconductors because the country is less important as a location for ICT/electronics equipment assembly. However, semiconductor buying decisions by Samsung, LG and other major electronics equipment manufacturers may be made in Korea, even though the actual product manufacturing and assembly will more likely take place in China. Despite its high ranking, Korea presents some IPR concerns for U.S. SME suppliers.

Semiconductors

Korea is the fourth largest importer of semiconductors in the world and is the world's second largest producer of semiconductors behind the United States. Korea's semiconductor industry is innovative and is currently the United States' largest competitor, with a global market share of 16 percent in 2013.[60] U.S. companies face stiff competition from Samsung and SK Hynix, the second and fifth largest semiconductor companies in the world. In 2013, semiconductors regained Korea's number one export spot with a record high of $60 billion.[61] Korea's electronic products industry, which is the largest demand factor for semiconductors, is expected to grow from $24.7 billion to $26.2 billion from 2014 to 2016,[62] an average annual growth rate of 3 percent. Growth will be driven by production of consumer electronics, mobile communications, displays, the next generation of LCD TVs, Internet-enabled sensors, the Internet of Things, and automotive electronics.

Semiconductor Manufacturing Equipment

U.S. SME companies are well established in the Korean market, and as the world's second largest market, Korea is vital for the U.S. equipment industry.[63] Due to continued semiconductor fabrication/manufacturing facility (fab) construction and fab equipment upgrading by Korean semiconductor manufacturers, Korea grew from the third-largest market for SME to second place in 2010, and has remained there ever since. Korea represents 18 percent of the world market for SME. The Korean market is expected to grow from $6.74 to $9.11 billion from 2014 to 2016,[64] an average annual growth rate of 18 percent. Unlike semiconductors, there are no major Korean producers of SME and Korean SME companies have less than 5 percent of the world market.[65] U.S. equipment suppliers face some IPR issues and Korean semiconductor companies face pressure by the Government of Korea to buy Korean equipment.

The GOK has a long-standing policy goal of increasing Korean companies' share of the Korean and world SME markets. The current goal is to increase Korean manufacturer's share of the world SME market by five percent from 2009 to 2015, and another five percent by 2020, and increase Korean share of the Korean market from 20 percent to 35 percent over the same period. The GOK also has launched the "Semiconductor Equipment Commercialization Project" which encourages Samsung and SK Hynix, the two largest Korean semiconductor companies, to develop major equipment both in subsidiary

companies and in other Korean SME companies for them to purchase.

According to Invest Korea, "recently Korea's device companies have been determined to localize equipment production and minimize dependence of foreign equipment in order to secure stable supply."[66] The large Korean semiconductor companies are trying their best to buy at least some Korean SME, and they do want to have more control over supply. However, Korean attempts to increase their SME market share have not been very successful so far. Korean companies gained less than 1 percent of the worldwide market from 2009 to 2012, and their share of their own national market fell 4 points over the same period. Most of this came from a 10 percent drop in 2010[67], which was at least partially due the aftereffects of the world financial crisis on the world semiconductor industry.

Challenges and Barriers to U.S. Semiconductor and Semiconductor Manufacturing Equipment Exports

Overall U.S. companies enjoy barrier-free access to the Korea semiconductor and semiconductor manufacturing equipment markets. There is, however, one major concern for semiconductor manufacturing equipment suppliers: protection of intellectual property rights. A lesser challenge is the competition presented to U.S. semiconductor makers by Korea's semiconductor industry.

Semiconductors

The Korean semiconductor industry is perhaps the most cost-competitive in the world, posing challenges to U.S. semiconductor companies. The GOK, through the South Korean Ministry of Trade, Industry and Energy (MOCIE), has introduced a series of policy initiatives to support the growth of the industry. Policies include measures to expand cooperation between small and medium-sized enterprises and large conglomerates by carrying out detailed projects to develop technologies, nurture human resources, and foster the development of commercialization technologies for system semiconductors for mobile phones, digital appliances (IoT-connected), and electronic systems for automobiles.[68] The GOK has fostered a strong program to attract foreign direct investment by offering tax breaks for R&D of semiconductors and ICT products. Some U.S. firms have taken advantage of these incentives. For example, Cisco (USA) has established a global joint R&D center in Korea, and is using it as an R&D headquarters for the development of "smart-cities" technology and products.[69]

Semiconductor Manufacturing Equipment

U.S. companies may confront IPR issues in Korea, some of which appear to be influenced by Korean policies to promote local production of SME. In recent industry surveys, Korea was identified by the semiconductor manufacturing equipment and materials industries as the country of most concern with respect to IPR. Companies have felt pressure to transfer their IP in order to sell their SME in Korea. One survey response said "…Korean government invites Korean suppliers in to copy products they get from other suppliers while disregarding whether something is IP protected or not..."[70]

Some companies report that after they complained of an IP violation in Korea, they were required to license their technology. One even reported that when they sued their competitor in Korea for patent infringement, all of their patents in the suit were invalidated. SME companies in general are reluctant to file complaints because they report positive outcomes only half the time, and many firms reported that challenging IP violations in court caused business losses and/or forced licensing to keep business.[71]

In spite of these issues with IPR protection, Korea is a vital market, and U.S. companies are able to do business there without major problems most of the time.

Opportunities for U.S. Companies

U.S. companies enjoy good access to Korean markets for semiconductors and semiconductor manufacturing equipment. Korea is expected to continue as the second largest semiconductor manufacturing equipment market, and rank among the top five for semiconductors. Semiconductors and semiconductor manufacturing equipment have duty-free access to the Korean market through the WTO Information Technology Agreement and the U.S. – Korea Free Trade Agreement.

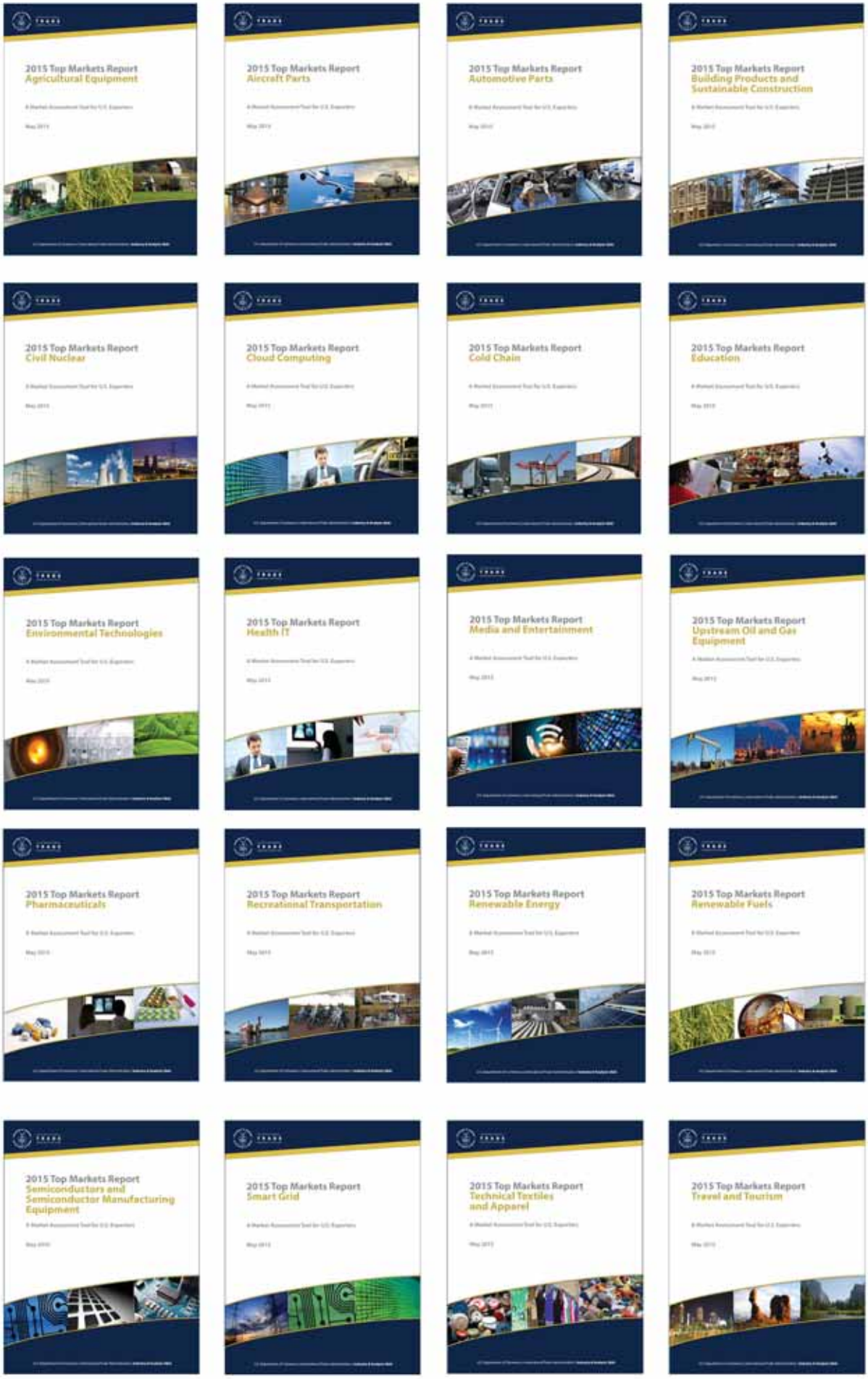
Semiconductors

In 2013, Korea imported $36.5 billion of semiconductors.[72] Couple that with Korean electronics production of $24.7 billion in 2014 and

you come up with a very attractive market. Korea is a world leader in developing innovative consumer electronics products, including mobile communications, displays (including next-generation Ultra High Definition monitors and televisions), automotive electronics, appliances that digitally talk to one another in a house-hold network (Internet of Things), and "smarter" cars, buildings, and entire smart cities –all of which require more advanced semiconductors as inputs. Most U.S. semiconductors are imported into Korea tariff-free under the WTO Information Technology Agreement, and the rest are duty free under the U.S.-Korea Free Trade Agreement, presenting an excellent opportunity for leading edge U.S. semiconductor companies to access the market.

Semiconductor Manufacturing Equipment

U.S. exports of SME to Korea in 2014 were valued at $3.0 billion, a 41 percent increase over 2013. Korea is the second-largest U.S. and global market for SME. The Korean market is forecast to experience significant growth from 2014 to 2016: 19 percent from 2014 to 2015 to over $8 billion dollars, and another 14 percent from 2015 to 2016, when the market is expected to be worth over $9 billon. More than 80 percent of SME sold in Korea is imported, and the U.S. is the top producer.



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